Sample Questions

Don't use calculators.

1. Let W mean *the wind is blowing*, P mean *Lara passes her exam* and H mean *Dad is happy*. Express the following statements symbolically, using the notation of propositional logic.

   (a) The wind is not blowing.

   (b) Lara passes her exam or Dad is sad.

   (c) Lara fails her exam and the wind is blowing.

   (d) If Lara passes her exam then Dad is happy.

   (e) The wind is blowing if and only if Dad is sad.

2. Consider the compound proposition $(P \to Q) \leftrightarrow (P \wedge \sim Q)$.

   (a) Construct the truth table for the compound proposition.

   (b) Is this a tautology, a contradiction or a contingency? Give reasons for your answer.

3. Consider the compound proposition $P \vee Q \vee \sim R \to Q \wedge R$.

   (a) Construct the truth table for the compound proposition.

   (b) Is this a tautology, a contradiction or a contingency? Give reasons for your answer.

4. Consider the compound proposition $P \wedge \sim Q \wedge R \to P \wedge (Q \vee R)$.

   (a) Construct the truth table for the compound proposition.

   (b) Is this a tautology, a contradiction or a contingency? Give reasons for your answer.